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Requested

(54) CHARGING APPARATUS AND METHOD OF WIRELESS HEADSET

**● Abstract**

Machine Translation

Human Translation

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The present invention relates to the charging apparatus of the cordless headset, and the charge big merchant cordless headset battery, the cordless headset battery and the connector connecting the cellular-phone battery part, and the cellular-phone battery part charging the cordless headset battery with electricity are included. The cellular-phone battery part includes the cellular-phone battery, the voltage detecting portion detecting the voltage of the battery of the cordless headset and cellular-phone battery, the microprocessor controlling the charger circuit based on the detected voltage as described in the above, and the charger circuit charging the battery of the cordless headset with electricity a microprocessor.

Machine Translation

Human Translation

**PURPOSE:** An apparatus and a method thereof are provided to charge a battery of a wireless head set by a battery of a portable phone without using a charger of the head set.

**CONSTITUTION:** A connector(30) connects a wireless head set battery(40) to a portable phone battery(20). The connector(30) includes a cable having a jack. The portable phone battery(20) charges the wireless head set battery(40). A

voltage detector(24) detects a voltage of the wireless head set battery(40) and a voltage of the portable phone battery(20). A microprocessor(22) controls a charge circuit(26) based on the voltages of the wireless head set battery(40) and the portable phone battery(20) detected by the voltage detector(24). The charge circuit(26) charges the wireless head set battery(40) according to a control of the microprocessor(22).

### ● Representative Drawing(s)

Fig. 2

### ● Keyword(s)

The blue tooth, and the head set.

### ● Description

#### ◆ Brief Explanation of the Drawing(s)

- 2 Figs. 1a and 1b are the drawing showing the typical device configuration where the head set can be applied to
- 3 Fig. 2 is a drawing showing the configuration of the cordless headset charging apparatus according to a preferred embodiment of the present invention
- 4 Fig. 3 is a control flow diagram for charging battery the cordless headset using the battery of the cellular phone according to the present invention.

#### ◆ Details of the Invention

##### ● Purpose of the Invention

*The Technical Field to which the Invention Belongs and the Prior Art in that Field* .....

- 5 The present invention relates to the blue tooth (Bluetooth) head set, more particularly, to the charging apparatus and method of the bluetooth headset.
- 6 The bluetooth is the standard which is like that, wirelessly connects the portable personal computer, and the mobile apparatuses including the cellular phone in the narrow range as the heartburnings cost. By using the radio frequency, it decreases the voice and data in a communications between all kinds of the digital devices without the physical cable and the standard receives. For example, the bluetooth radio technology is implemented in the cellular phone and laptop computer and the cellular phone are connected without the cable and it can use. And actually it can become a part of all digital device bluetooth systems to the PDA (Personal digital assistant), a desktop, FAX, a keyboard, a joystick.
- 7 In this bluetooth system, it is wirelessly connected for the use functioning as the audio input and output mechanism of a device and the head set (headset) can provide the full duplex audio. The head set increases the portability of a user while maintaining the call.  
Figs. 1a and 1b shows the typical device configuration where the head set can be applied to. The cellular phone, and the laptop computer or the personal computer operate about an input and output as the audio gateway. The head set operates to the remote audio input and output mechanism of the audio gateway.

- 8 In this way, the head set is expected to be after this extensively used in the bluetooth system. This cordless headset is charged like the cellular phone in order to operate. In other words, the conventional cordless headset is comprised in order to be charged with the separate charging apparatus.

#### **Technical Challenges of the Invention**

- 9 But there is a problem that in case the cordless headset tries to be used in an emergency, it urgents, the cordless headset tries to be used but the cordless headset is unable to be used in case it does not have the cordless headset charging apparatus. .
- 10 Therefore, an object of the present invention is to provide a method and apparatus for charging the battery of the cordless headset with electricity without the charging apparatus of the cordless headset from the battery of the cellular phone.

#### **• Structure & Operation of the Invention**

- 11 To accomplish the above objects, as to the charging apparatus of the cordless headset, the present invention includes charge big merchant cordless headset battery, the cordless headset battery and the connector connecting the cellular-phone battery part, and the cellular-phone battery part charging the cordless headset battery with electricity. The cellular-phone battery part is done by a feature to include cellular-phone battery, the voltage detecting portion detecting the voltage of the voltage of the battery of the cordless headset and cellular-phone battery, the microprocessor controlling the charger circuit based on the detected voltage as described in the above, and the charger circuit charging the battery of the cordless headset with electricity a microprocessor.
- 12 Referring to the attached drawing, the preferred embodiments of below the present invention are circumstantially illustrated. So that many specified details help the understanding of being more overall of the present invention in below description and attached view, it is provided but or a change of such specified items can be made in the scope of the present invention as the predetermined deformation, a change is obvious in the technical field to a person skilled in the art, it will do.
- 13 Fig. 2 is a drawing showing the configuration of the cordless headset charging apparatus according to a preferred embodiment of the present invention.
- 14 Referring to Fig. 2, the cordless headset charging apparatus according to the embodiment of the present invention is equipped with the cellular-phone battery part (20), and the connector (30) and cordless headset battery (40). The cordless headset battery (40) can be charged through the connector (30) with the cellular-phone battery part (20). The connector (30) attaches the cellular phone and cordless headset interval. The connector (30) can be the cable having the jack. The cellular-phone battery part (20) includes the microprocessor (20), the voltage detecting portion (24), and the charger circuit (26) and battery (28).
- 15 The charger circuit (26) the cellular-phone battery (28) to the power source. It is provided with a current or \*\*\* outputted voltage and it charges the cordless headset battery (40). Moreover, as to the charger circuit (26), according to the voltage of the cellular-phone battery (28) by the microprocessor (16) and cordless headset battery (40), the charging current or the voltage is controlled.
- 16 The microprocessor (22) memorizes the various parameter like the battery voltage, temperature of battery, charging current, the interrupt cycle etc including the RAM (random access memory) for the program instruction or EEPROM. Moreover, the microprocessor (22) includes a plurality of programmable input/output ports. In other words, the microprocessor (16) is combined in the voltage detecting portion (24) and charger circuit (26) and as shown in Fig. 1, the information outputted from thisess is input. Accordingly, the microprocessor (16) performs the general control about the battery of the battery of the cellular phone and

cordless headset by using these informations. More concretely, the microprocessor (22) monitors the voltage of a battery at the designated time. If the battery voltage outputted from the cordless headset battery (40) is higher than the cellular-phone battery (28), the charger circuit (26) is controlled in order to discontinue a charge toward the cordless headset battery (40) of the charger circuit (26).

- 17 As described in the above, the cordless headset charging apparatus comprises in order to charge the cordless headset battery with electricity with the battery of the cellular phone.
- 18 Fig. 3 is a control flow diagram for charging battery the cordless headset using the battery of the cellular phone according to the present invention. Hereinafter, referring to Fig. 2, the filling of the cordless headset battery is illustrated.
- 19 Firstly, as to the microprocessor (22), it detects whether the battery (28) of the cellular phone was combined in the battery of the cordless headset or not. If the cellular-phone battery (28) was combined in the cordless headset battery (40), at Step 120, the voltage detecting portion (24) detects the voltage of the cellular-phone battery (28) and voltage of the cordless headset battery (40). The voltage of the cellular-phone battery determines the whether or not. It is greater than the voltage of the cordless headset battery. The voltage of the cellular-phone battery is great than the voltage of the cordless headset battery. It progresses as 130 step. As to the microprocessor (22), at Step 130, the cordless headset battery is charged with the charger circuit (26). Thereafter the battery voltage of the cellular phone again determines the whether or not with the charge of 130 step it is greater than the battery voltage of the cordless headset. At this time, as to the microprocessor (22), at Step 150, the battery voltage of the cordless headset terminates a charge if it is not smaller than the battery voltage of the cellular phone.
- 20 As to the battery charging method of the above-described cordless headset, in case of charging urgently the cordless headset, it charges the cordless headset with the battery of the cellular phone. This battery charging method is applicable to the battery pack mounting a charger. And it is made of the software of the microprocessor (16).

#### • Effects of the Invention

- 21 As described in the above, in case the cordless headset tries to be used in an emergency, the battery of the cordless headset can be charged with electricity without the charging apparatus of the cordless headset from the battery of the cellular phone.

#### ● Scope of Claims

Claim[1] :

- 22 The cordless headset charging apparatus of the charging apparatus of the cordless headset, wherein the charge big merchant cordless headset battery, the cordless headset battery and the connector connecting the cellular-phone battery part, and the cellular-phone battery part charging the cordless headset battery with electricity are included; and the cellular-phone battery part includes the cellular-phone battery, the voltage detecting portion detecting the voltage of the voltage of the battery of the cordless headset and cellular-phone battery, the microprocessor controlling the charger circuit based on the detected voltage as described in the above, and the charger circuit charging the battery of the cordless headset with electricity a microprocessor.

Claim[2] :

- 27 The cordless headset charging apparatus of claim 1, wherein a connector is the cable having the jack.

**Claim[3] :**

- 28 With the step, that the cellular phone including battery, the voltage level detection circuit detecting the voltage of a battery, and the microprocessor controlling the charger circuit based on the voltage of a battery and the charger circuit charging a battery with electricity a microprocessor detects the voltage of the battery of the cordless headset as to the method for charging the battery of the cordless headset with electricity through a connector with the voltage level detection circuit and the step, that compares the battery voltage of the cordless headset and battery voltage of the cellular phone and the step that charges the battery of the cordless headset with electricity with the charger circuit from the battery of the cellular phone if the battery voltage of the comparison result cordless headset is small.
- 32 The filling of the cordless headset comprising: the step that the battery voltage of the cordless headset is not smaller than the battery voltage; and terminates a charge.









